



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,141	01/24/2002	Vinod Mohan Philip	02P01254US	2318

7590

07/31/2003

Siemens Corporation  
Intellectual Property Department  
186 Wood Avenue South  
Iselin, NJ 08830

EXAMINER

MCHENRY, KEVIN L

ART UNIT	PAPER NUMBER
1725	3

DATE MAILED: 07/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**\*Office Action Summary**

Application No.

10/056,141

Applicant(s)

PHILIP, VINOD MOHAN

Examiner

Kevin L McHenry

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-15 is/are allowed.
- 6) ☒ Claim(s) 1 and 5 is/are rejected.
- 7) ☒ Claim(s) 2-4,6 and 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

***Claim Objections***

1. Claim 2 is objected to because of the following informalities:

In line 3 of claim 2 weight is misspelled as "weigh".

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Crivella et al. (U.S.P. 4,650,109).

Crivella et al. teach a process in which an alloy powder mixture that is applied to a component, or substrate, and then a heat treatment is conducted. Crivella et al. teach that this heat treatment performs the dual functions of both bonding the powder and solution treating the component. The component is titanium alloy (see U.S.P. 4,650,109; particularly column 1, lines 7-12, 64-68; column 2, lines 1-8, 26-56; column 3, lines 24-28).

Crivella et al. do not teach that the component is cast, nor do Crivella et al. teach how the component is fabricated.

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made that the component taught by Crivella et al. would have

Art Unit: 1725

been initially cast before being subjected to the process taught by Crivella et al. since the conventional method of fabricating titanium alloy components is through casting, which would provide the best method of providing a good surface finish at low cost. Such a process of casting a titanium alloy bone implant is demonstrated by Schwartz (see U.S.P. 5,524,695; particularly column 3, lines 13-25).

4. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burke et al. (U.S.P. 6,508,000).

Burke et al. teach a process in which a component of an alloy material, such as conventionally cast IN738, is used in service and then is repaired by applying an insert and an intermediate foil or paste to the component. The insert is then bonded to the component by performing liquid phase bonding. Burke et al. teach that the bonding temperature and solution heat treatment temperature are the same for conventional cast IN738 (see U.S.P. 6,508,000; particularly column 1, lines 13-15, 48-67; column 4, lines 18-22; column 6, lines 38-57).

Burke et al. does not teach that the component is solution treated before being used in service or that powder is applied to the component.

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made that the component taught by Burke et al. would have been solution treated before being used in service since the component is a nickel-based superalloy, which is conventionally solution treated and then aged to precipitate gamma prime particles and provide desired mechanical properties. It would have been obvious to one of ordinary skill that the paste taught by Burke et al. would have contained

Art Unit: 1725

powders since a paste is a mixture powders and binder, as shown by Schaefer et al. (see U.S.P. 5,806,751; particularly column 2, lines 63-67; column 4, lines 37-39).

***Allowable Subject Matter***

5. Claims 8-15 are allowed.
6. Claims 2-4, 6, and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not teach a process in which an alloy material is cast to form a component, the component is solution heat treated, the component is used in an operating environment, an alloy powder mixture is applied to the component, and the mixture is bonded to the component by a liquid phase diffusion bonding process using a brazing heat treatment that also incorporates the solution heat treatment, wherein the alloy material is IN 939, the alloy powder is a 50/50 mixture by weight of In 939 and AM 775, the solution heat treatment is performed at 2120 °F for four hours and then cooled to below 1000 °F in twenty minutes or less, and the brazing heat treatment cycle includes heating to 2120 °F for four hours, cooling to 2050 °F and holding for four hours, and then cooling to below 1000 °F in twenty minutes or less.

Nor does the prior art of record teach or suggest such a process in which welding is performed before or after bonding.

Art Unit: 1725

Nor does the prior art of record teach or suggest a process in which an alloy material is cast to form a component, a powder alloy mixture is applied to the component, and a solution heat treatment is performed on the component so that the powder is also bonded to the component by liquid phase diffusion bonding during the treatment, wherein the component is used in a high temperature operating environment after the solution treatment, a second alloy powder mixture is applied to the component, and the mixture is bonded to the component by a liquid phase diffusion bonding process using a brazing heat treatment that also incorporates the solution heat treatment.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Van Esch (U.S.P. 6,575,349), Ewing et al. (U.S.P. 4,152,816), Duvall et al. (U.S.P. 4,008,844), Cross (U.S.P. 4,096,615), and Ewing (U.S.P. 4,270,256) are cited of interest for illustrating the state of the art in bonding and repairing articles through diffusion bonding.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin L McHenry whose telephone number is (703) 305-9626. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Application/Control Number: 10/056,141

Page 6

Art Unit: 1725

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



July 23, 2003



M. ALEXANDRA ELVE  
PRIMARY EXAMINER